Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

1. (Currently Amended) A modem comprising:

a carriergroup transmitting means coupled to a transmission channel;

a carriergroup receiving means coupled to the transmission channel for receiving parameters relating to a plurality of carriers in the transmission channel; and

a carriergrouping means, coupled to the carriergroup transmitting means and to the carriergroup receiving means, for determining at least one carriergroup parameter and at least one dynamically variable size carrier group for the plurality of carriers in the transmission channel based on the parameters received by the carriergroup receiving means;

wherein the carriergroup ~~transmitter~~ transmitting means transmits at least one message to the transmission channel comprising the at least one carriergroup parameter and the at least one carrier group.

2. (Original) The modem of claim 1 wherein the at least one carriergroup parameter transmitted by the carriergroup transmitting means is a carriergroup SNR parameter for the plurality of carriers.

3. (Currently Amended) The modem of claim 1 wherein the at least one carriergroup parameter is ~~the~~ a worst case SNR for the at least one carriergroup.

4. (Currently Amended) The modem of claim 1 wherein the at least one carriergroup parameter is a carriergroup bitloading parameter.

5. (Cancelled)

6. (Cancelled)

7. (Currently Amended) The modem of claim 1 ~~wherein~~ further comprising means for using at least one message to the transmission channel comprising the at least one carriergroup parameter and the at least one carrier group ~~is used~~ to set up a tone encoder in a far-end modem coupled to the transmission channel.

8. (Previously Presented) A method for grouping a plurality of carriers in a DMT communication system, the method comprising the steps of:

determining at least one dynamically variable sized carrier group for the plurality of carriers;

determining at least one carriergroup parameter for the at least one carrier group; and

sending at least one message comprising the at least one carriergroup parameter.

9. (Previously Presented) The method of claim 8 wherein the step of determining a carriergroup parameter for the carriergroup comprises:

determining a carriergroup signal-to-noise ratio for the at least one carrier group.

10. (Currently Amended) The method of clam 9 wherein the carriergroup signal-to-noise ratio for the at least one carrier group is ~~the~~ a worst case signal-to-noise ratio for the at least one carrier group.

11. (Currently Amended) The method of claim 8 wherein the step of determining a carriergroup parameter for the carriergroup ~~further~~ comprises ~~the step of~~:

determining at least one carriergroup bitloading for the at least one carriergroup.

12. (Cancelled)

13. (Cancelled)

14. (Original) The method of claim 8 wherein at least one message comprising the at least one carriergroup parameter is used to set up a tone encoder in a far end modem.

15. (Previously Presented) A method for grouping a plurality of carriers in a DMT communication system, the DMT communication system comprising a near end and a far end modem, the method comprising:

determining at least one dynamically variable sized carriergroup from the plurality of carriers;

determining a carriergroup signal-to-noise ratio for the at least one carriergroup;

determining a carriergroup bitloading and a carriergroup gain for the at least one carriergroup based on the carriergroup signal-to-noise ratio; and

using the carriergroup bitloading and the carriergroup gain for the at least one carriergroup for transmitting messages from the near end modem to the far end modem.

16. (Currently Amended) The method of claim 15 wherein the carriergroup signal to noise ratio for the at least one carriergroup is ~~the~~ a worst case signal to noise ratio for the plurality of carriers.

17. (Cancelled)

18. (Cancelled)

19. (Original) The method of claim 15 wherein the communication system is a VDSL system.

20. (Previously Presented) A modem for grouping a plurality of carriers in a DMT communication system coupled to a far-end modem via a transmission channel, the modem comprising:

carriergrouping means for determining multiple dynamically variable sized carrier groups for the plurality of carriers and for determining at least one carriergroup parameter for each of the multiple carrier groups; and

carriergroup transmitting means for transmitting messages comprising the at least one carriergroup parameter to the far-end modem via the transmission channel, to enable the far-end modem to send and receive messages using the multiple carrier groups.

21. (Previously Presented) The modem of claim 20 wherein the at least one parameter is a signal to noise ratio.

22. (Currently Amended) The modem of claim 20 wherein the carriergroup parameter for each of the multiple carrier groups is ~~the~~ a worst case signal-to-noise ratio for the specified carrier group.

23. (Original) The modem of claim 20 wherein the carriergroup parameter is a carriergroup bitloading parameter.

24. (Cancelled)

25. (Cancelled)

26. (Original) The modem of claim 20 wherein the messages comprising the at least one carriergroup parameter is used to set up a tone encoder in the far-end modem coupled to the transmission channel.

27. (New) The modem of claim 1 further comprising a tone decoder coupled to the transmission channel wherein the at least one carriergroup parameter and the at least one carrier group is used to set up the tone decoder.

28. (New) The method of claim 8 wherein at least one message comprising the at least one carriergroup parameter is used to set up a tone decoder in a near end modem.

29. (New) The modem of claim 20 further comprising a tone decoder coupled to the transmission channel wherein the at least one carriergroup parameter is used to set up the tone decoder.